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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,569	07/10/2006	Stephen John Gibbon	A1116/20341	4463

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EXAMINER

PETTITT, JOHN F

ART UNIT	PAPER NUMBER
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3744

NOTIFICATION DATE	DELIVERY MODE
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07/23/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@crbcp.com

Office Action Summary	Application No. 10/550,569	Applicant(s) GIBBON, STEPHEN JOHN	
	Examiner John F. Pettitt	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,7,11-14,19,24-26 and 30-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 5, 7, 11-14, 19, 24-26, 30-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 32-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support anywhere in the originally filed disclosure, claims, or drawings, for the limitation in the independent claims 32 and 35 that the first and second modules contain groups of components, in addition to or separate from the conduits contained and required for fluid communication with the modules. The only mention of components is of the distillation columns of the first and second modules and the ability of the modules to communicate fluidly with other modules (page 6, parag. 2). Therefore, the recitation is new matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 11, 19, 25-26, 30-32, 34-39, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guillard (FR 2 780 147) in view of Robert et al. (EP 1 314 942) hereafter Robert. In regard to claims 1, 19, 25, 30, Guillard teaches a fully assembled unit, comprising: a first self-contained distillation column module (13) within which is a high pressure column (2); a second self-contained distillation column module (14) within which is a low pressure column (3); the second module being immediately adjacent and attached directly to the first module (see figures 2A-E, 6A-C, 7; they are next to one another and connected as seen in figure 1); a self-contained heat exchange module (15) within which is a heat exchange means (5); the heat exchange module being immediately adjacent and attached directly to the first and second modules (see figure 1, 2A-E, 6A-C, 7); at least one self-contained further processing unit (35) immediately adjacent and attached directly to at least the second module (14); the first module, second module, heat exchange module, and further processing unit are interconnected (see figures); the fully assembled unit is adapted to be transported from one location to another (page 7, last lines - page 8, parag. 1; page 15 within claim 26). Guillard does not explicitly state what amount of product the facility is capable of producing, however,

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it is noted that Robert teaches that producing oxygen product at 2000 metric ton/day is a known and achievable production rate (parag. 14, 17). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to design the plant of Guillard large enough to provide 2000 metric tons of O₂ so that an operator may profit from selling the O₂ product and further than such large quantities benefit from standardization of sizing. In regard to claim 11, the argon distillation column is considered a purification unit. In regard to claim 26, 36-39, Further, Guillard and Robert teach all of the limitations but do not explicitly teach that construction takes place at a dockside or a construction facility with access to a dockside for transportation by sea. However, it is clear that in order to build the device at a construction facility owned by the producer and then provide the device to a customer overseas one must build the device at a facility that has access to a dockside in order to provide the device over the seas as a matter of logistical and mechanical expedient. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the assembled unit from a construction site with access to the dockside for the purpose of convenient delivery of the unit over a sea. In regard to claim 31, Guillard and Robert do not explicitly state that the facility produces at least 3500 metric tons/day of oxygen. However, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Guillard be sized to provide 3500 tons/day as Robert discloses producing 2000 metric tons/day, and therefore, producing more would be obvious depending on the capital and cost restraints and the value of the product oxygen. In regard to claim 32, 34, 35, 41, Guillard teaches that the first module (13)

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contains a first set of conduits (see figure 1, and all interconnecting conduits therein) and the second module (14) containing a second set of conduits (see figure 1, and all conduits therein); the first and second set of conduits are in fluid communication (see figure). Guillard and Roberts do not teach a self-contained storage module immediately adjacent and attached directly to the first module, however, it is a simple matter of replication to continue providing the system components within modules for same purposes as provided and discussed previously (Roberts- standardization and ease of installation, and smaller overall footprint). Roberts teaches that oxygen is desirably stored in a storage tank (parag. 11); Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Guillard and Robert with a storage tank module to be adjacent and attached to the first and second modules for the purpose making the footprint of the facility smaller and for the purpose of making it easier to provide the necessary storage by using a number of standard sized and easily handled containers rather than one custom sized container and for the purpose of providing further thermal insulation to storage tank. Such further storage modules would necessarily have cross-over structures (interpreted as a connecting structure that permits fluids to cross-over from one module to another) for attaching the storage modules to the first and second modules.

Claims 1, 7, 11, 13, 14, 19, 24-26, 30-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guillard in view of Bracque et al. (US 5,461,871) hereafter Bracque

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(871) and further in view of Robert employing an alternative interpretation of Guillard for meeting the limitation of the further processing unit.

In regard to claims 1, 11, 13, 19, 25, 30, Guillard teaches a fully assembled unit, comprising: a first self-contained distillation column module (13) within which is a high pressure column (2); a second self-contained distillation column module (14) within which is a low pressure column (3); the second module being immediately adjacent and attached directly to the first module (see figures 2A-E, 6A-C, 7; they are next to one another and connected as seen in figure 1); a self-contained heat exchange module (15) within which is a heat exchange means (5); the heat exchange module being immediately adjacent and attached directly to the first and second modules (see figure 1, 2A-E, 6A-C, 7).

Guillard teaches an air purification unit (7, 8) but does not teach that the unit is a self-contained module. However, providing the purification unit as a module would provide the same protection in handling and simplicity benefits as modularity provides the other units with. Further, Bracque (871) teaches that such purification units are known to be provided in modular units (see figure 1-2, column 2, lines 52-58) and include a compressor (9). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Guillard with a modular processing unit as taught by Bracque (871) for the purpose of providing ease of installation and protecting the equipment within the module.

Guillard teaches that the first module, second module, heat exchange module, and further processing unit are interconnected (see figures); the fully assembled unit is

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adapted to be transported from the location of the factory to another (page 7, last lines - page 8, parag. 1; page 15 within claim 26). Guillard does not explicitly state what amount of product the facility is capable of producing, however, it is noted that Robert teaches that producing oxygen product at 2000 metric ton/day is a known and achievable production rate (parag. 14, 17). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to design the plant of Guillard large enough to provide 2000 metric tons of O₂ so that an operator may profit from selling the O₂ product and further than such large quantities benefit from standardization of sizing. In regard to claims 7, 24, 33, 40, Guillard teaches a third self contained distillation column module (35) within whichh is an auxiliary column or argon column (34, 33, or 36) operationally interconnected with the low pressure column (3) and being adjacent and attached to the second module (14) by a first cross-over structure (inherent to operation as such is interpreted as a connecting structure that permits fluids to cross-over from one module to another). In regard to claim 14, Bracque (871) teaches that the processing unit is a chiller tower (10). In regard to claim 26, 36-39, Further, Guillard and Robert teach all of the limitations but do not explicitly teach that construction takes place at a dockside or a construction facility with access to a dockside for transportation by sea. However, it is clear that in order to build the device at a construction facility owned by the producer and then provide the device to a customer overseas one must build the device at a facility that has access to a dockside in order to provide the device over the seas as a matter of logistical and mechanical expedient. Therefore, it would have been obvious to one of ordinary skill in the art, at

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the time the invention was made, to provide the assembled unit from a construction site with access to the dockside for the purpose of convenient delivery of the unit over a sea. In regard to claim 31, Guillard and Robert do not explicitly state that the facility produces at least 3500 metric tons/day of oxygen. However, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Guillard be sized to provide 3500 tons/day as Robert discloses producing 2000 metric tons/day, and therefore, producing more would be obvious depending on the capital and cost restraints and the value of the product oxygen. In regard to claim 32, 34, 35, 41, Guillard teaches that the first module (13) contains a first set of conduits (see figure 1, and all interconnecting conduits therein) and the second module (14) containing a second set of conduits (see figure 1, and all conduits therein); the first and second set of conduits are in fluid communication (see figure). Guillard and Roberts do not teach a self-contained storage module immediately adjacent and attached directly to the first module, however, it is a simple matter of replication to continue providing the system components within modules for same purposes as provided and discussed previously (Roberts- standardization and ease of installation, and smaller overall footprint). Roberts teaches that oxygen is desirably stored in a storage tank (parag. 11); Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Guillard and Robert with a storage tank module to be adjacent and attached to the first and second modules for the purpose making the footprint of the facility smaller and for the purpose of making it easier to provide the necessary storage by using a number of standard sized and easily handled containers rather than one

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custom sized container and for the purpose of providing further thermal insulation to storage tank. Such further storage modules would necessarily have cross-over structures (inherent to be connected as outlined) for attaching the storage modules to the first and second modules.

Claim 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guillard in view of Robert and further in view Bracque et al. (US 5,349,827) hereafter Bracque (827). Guillard teaches all of the claim limitations of claims 4-5 but does not explicitly teach that the diameter of the columns (2, 3) is over 3.5 meters or about 5 or 6 meters (16-19 feet). However, Guillard teaches that columns are of substantial height of 60 m. Further, it is routine practice in the art to size the column diameter to meet the flow demands and throughput goals of the system. Finally, Bracque (827) teaches distillation column diameters of about 5 meters (column 2, lines 20-25). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to employ the system of Guillard with columns having diameters of 5 meters as taught by Bracque (827) for the purpose of providing a sufficiently sized column for producing the desired throughput depending on the application at hand.

Claim 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guillard, Bracque (871), Robert, and further in view Bracque et al. (US 5,349,827) hereafter Bracque (827). Guillard teaches all of the claim limitations of claims 4-5 but does not explicitly teach that the diameter of the columns (2, 3) is over 3.5 meters or about 5 or 6

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meters (16-19 feet). However, Guillard teaches that columns are of substantial height of 60 m. Further, it is routine practice in the art to size the column diameter to meet the flow demands and throughput goals of the system. Finally, Bracque (827) teaches distillation column diameters of about 5 meters (column 2, lines 20-25). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to employ the system of Guillard with columns having diameters of 5 meters as taught by Bracque (827) for the purpose of providing a sufficiently sized column for producing the desired throughput depending on the application at hand.

Claim 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guillard in view of Robert and further in view Zarate et al. (US 4,957,523) hereafter Zarate.

Guillard teaches most of the limitations of claim 12, including that the air purification unit purifies the air of water and CO₂ (page 6, parag. 8) but does not explicitly teach that the air purification unit (4) comprises at least two air purification vessels arranged in parallel, each vessel comprising at least one bed of carbon dioxide and/or water adsorbent material. However, the purification system of Guillard is generically taught as such systems are well known in the art, as is taught, for example, by Zarate. Zarate teaches an air purification unit (150) comprises at least two air purification vessels (160, 170), each vessel (160, 170) comprising at least one bed of carbon dioxide and/or water adsorbent material (column 5, lines 65-67), said vessels (160, 170) being arranged in parallel and configured for use in a temperature or a pressure swing adsorption process (column 6, lines 1-15). Therefore, it would have been obvious to one of ordinary skill in

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the art, at the time the invention was made, to modify Guillard and Robert with the air purification unit (150) of Zarate for the purpose of providing air purification continuously as well as regenerating one of the vessels (160, 170) during operation so that the purification system can have more production hours (relative to maintenance hours).

Claim 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guillard, Bracque (871), Robert, and further in view Zarate et al. (US 4,957,523) hereafter Zarate. Guillard, Bracque, and Robert teach most of the limitations of claim 12, including that the air purification unit purifies the air of water and CO₂ (Guillard - page 6, parag. 8) but does not explicitly teach that the air purification unit (4) comprises at least two air purification vessels arranged in parallel, each vessel comprising at least one bed of carbon dioxide and/or water adsorbent material. However, the purification system of Guillard is generically taught as such systems are well known in the art, as is taught, for example, by Zarate. Zarate teaches an air purification unit (150) comprises at least two air purification vessels (160, 170), each vessel (160, 170) comprising at least one bed of carbon dioxide and/or water adsorbent material (column 5, lines 65-67), said vessels (160, 170) being arranged in parallel and configured for use in a temperature or a pressure swing adsorption process (column 6, lines 1-15). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Guillard and Robert with the air purification unit (150) of Zarate for the purpose of providing air purification continuously as well as regenerating one of the vessels (160,

170) during operation so that the purification system can have more production hours (relative to maintenance hours).

Response to Arguments

Applicant's arguments filed 4/8/2010 have been fully considered but are moot in view of the new grounds of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Pettitt whose telephone number is 571-272-0771. The examiner can normally be reached on M-F 8a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on 571-272-4834 or 571-272-

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6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John F Pettitt /
Examiner, Art Unit 3744

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art
Unit 3744

JFP III
July 14, 2010